REMARKS

This Amendment is in response to the Office Action dated June 23, 2004. Applicants respectfully request reconsideration and allowance of the application in view of the above-amendments and the following remarks.

I.   Declaration

The Office Action indicated that the signatures of the inventors are missing. A copy of the executed Declaration was filed on October 2, 2001 in response to a Notice to File Missing Parts, a second copy of which is enclosed. Also enclosed is a copy of the self-addressed return postcard indicating that the executed Declaration was received by the United States Patent and Trademark Office on October 11, 2001. The additional copy of the signed declaration should make the PTO file complete with respect to the Declaration.

II.   CLAIM OBJECTIONS

With respect to claims 1 and 2, the Office Action requested clarification as to the meaning of certain terms and phrases appearing in these claims, including "identities", "resynthesis window", "a predetermined depth of critical variable" and "most frequently".

The disclosure of the present application relates to the resynthesis or restructuring of blocks of logic in an integrated circuit design, so that the blocks have more optimal timing characteristics for critical variables.

Within this context, an "identity" relates to a set of different blocks of logic that are logically identical to one another. An identity is described on page 5, lines 4-7 and lines 14-21, for example, as "a union of (1) the axioms of the logic operations in M and (2) the definitions of functions of the logic cells of the technology basis in terms of logic operations." M is a subset of the most frequently used logic operations, such as

NOT, OR, AND, NOR, NAND, XOR, MUX, etc. "Expressions are considered identical if they can be transformed to another by reordering operands of "symmetrical" operations f_1 and by renaming all of the variables except x_1 (x_1 is considered as critical by timing)."

A "resynthesis window" essentially defines a window or boundary of logic cells that will be resynthesized or transformed in some way. The generation of a resynthesis window, is described on page 8, line 22 to page 9, line 20, for example. See also page 9, lines 5-6.

Claim 1 also refers to "creating a resynthesis window having less than a predetermined depth of critical variables." The logic in a resynthesis window can be defined by an expression having a critic variable, such as "x1". The depth of the expression is the number of logic operations, f, in the expression. For example as described on page 5, lines 10-13 and 22-26, an expression having the form $f_1(y_1...y_{i-1}f_2(x_1...x_n)y_{i+1}...y_m)$, where f_1, f_2 are from subset M, has a depth of two. An expression having the form $f_1(z_1...z_{i-1}f_2(y_1...y_{j-1}f_3(x_1...x_n)y_{j+1}...y_m)z_{i+1}...z_k)$ has a depth of three.

Claim 2 refers to, "selecting a set of most frequently used logic operations in the integrated circuit." The "most frequently used logic operations" are simply those types of logic operations in the integrated circuit that have been used most frequently.
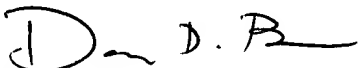
III.   CLAIM REJECTIONS

Claims 1, 10 and 19 were rejected under §102(e) as being unpatentable over Kaufman, U.S. Patent No. 6,591,407. Claims 2-9, 11-18 and 20 were indicated as being allowable if rewritten in independent form. Applicants would like to thank the Examiner for the indicated allowabilty of the subject matter appearing in claims 2-9, 11-18 and 20.

With this Amendment, independent claim 1 is amended to include the elements of dependent claim 5, which has now been canceled. Independent claim 10 is amended to include the elements of dependent claim 11, which has now been canceled. Independent claim 19 is amended to include the elements of dependent claim 20. Claims 1, 10 and 19 and their respective dependent claims should now be in condition for allowance.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

WESTMAN, CHAMPLIN & KELLY, P.A.

By: _____
David D. Brush, Reg. No. 34,557
Suite 1600 - International Centre
900 Second Avenue South
Minneapolis, Minnesota 55402-3319
Phone: (612) 334-3222 Fax: (612) 334-3312

DDB:tkj